

WW WW FFFFFFFFFF SSSSSSSS PPPPPPPP LL BBBBBBBB KK KK TTTTTTTTT
WW WW FFFFFFFFFF SSSSSSSS PPPPPPPP LL BBBBBBBB KK KK TTTTTTTTT
WW WW FF SS PP PP LL BB BB KK KK TT
WW WW FF SS PP PP LL BB BB KK KK TT
WW WW FF SS PP PP LL BB BB KK KK TT
WW WW FF SS PP PP LL BB BB KK KK TT
WW WW FFFFFFFFFFF SSSSSSSS PPPPPPPP LL BBBBBBBB KKKKKK TT
WW WW FFFFFFFFFFF SSSSSSSS PPPPPPPP LL BBBBBBBB KKKKKK TT
WW WW FF SS PP LL BB BB KK KK TT
WW WW FF SS PP LL BB BB KK KK TT
WW WW FF SS PP LL BB BB KK KK TT
WW WW FF SSSSSSSS PP LLLL BBBBBBBB KK KK TT
WW WW FF SSSSSSSS PP LLLL BBBBBBBB KK KK TT

The diagram illustrates a 10x10 grid of 100 cells, each containing one of four characters: 'L', 'I', 'S', or 'T'. The characters are arranged in a specific pattern:

- Top and Bottom Rows:** The first and last rows are entirely filled with the character 'T'.
- Left and Right Edges:** The first and last columns are entirely filled with the character 'L'.
- Center Column:** The central vertical column of 10 cells is filled with the character 'I'.
- Surrounding Structure:** The remaining cells are filled with the character 'S', forming a diamond shape that surrounds the central 'I' column.

For example, in the 5th row, the sequence of characters is T, S, S, S, S, S, S, S, S, T. The 5th column has the sequence L, L, I, I, I, I, I, I, I, L.

```
0001 0 XTITLE 'EDTSWFSPLBKT - split the current bucket'
0002 0 MODULE EDTWFSPLBKT (
0003 0           IDENT = 'V04-000'
0004 0           ) =
0005 1 BEGIN
0006 1
0007 1 ****
0008 1
0009 1   * COPYRIGHT (c) 1978, 1980, 1982, 1984 BY
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0024 1   * DIGITAL ASSUMES NO RESPONSIBILITY FOR THE USE OR RELIABILITY OF ITS
0025 1   * SOFTWARE ON EQUIPMENT WHICH IS NOT SUPPLIED BY DIGITAL.
0026 1
0027 1
0028 1 ****
0029 1
0030 1
0031 1 ++
0032 1   * FACILITY: EDT -- The DEC Standard Editor
0033 1
0034 1   * ABSTRACT:
0035 1
0036 1   * Split the current bucket.
0037 1
0038 1   * ENVIRONMENT: Runs at any access mode - AST reentrant
0039 1
0040 1   * AUTHOR: Bob Kushlis, CREATION DATE: October 16, 1978
0041 1
0042 1   * MODIFIED BY:
0043 1
0044 1   * 1-001 - Original. DJS 23-Feb-1981. This module was created by
0045 1   * extracting routine SPLIT BUKT from module EDTWF.
0046 1   * 1-002 - Regularize headers. JBS 19-Mar-1981
0047 1   * 1-003 - Modify to use EDT$WORKIO. STS 15-Feb-1982
0048 1   * 1-004 - Copy entire old bucket before split. STS 18-Feb-1982
0049 1   * 1-005 - Don't copy on 11's since it uses too much stack. STS 01-Mar-1982
0050 1   * 1-006 - Change stack storage to heap storage. STS 05-Mar-1982
0051 1   * 1-007 - Add literals for callable EDT. STS 10-Mar-1982
0052 1   * 1-008 - Give an error return if heap storage is exhausted. JBS 09-Jun-1982
0053 1   * 1-009 - Put code for edt$swf_nxt_buf in line. STS 11-oct-1982
0054 1   * 1-010 - Improve listing appearance. JBS 20-Jun-1983
0055 1   * --
0056 1
```

```
58      0057 1 %SBTTL 'Declarations'  
59      0058 1 !  
60      0059 1 ! TABLE OF CONTENTS:  
61      0060 1 !  
62      0061 1 !  
63      0062 1 REQUIRE 'EDTSRC:TRAROUNAM';  
64      0501 1 !  
65      0502 1 FORWARD ROUTINE  
66      0503 1     EDT$WFSPLBKT;  
67      0504 1 !  
68      0505 1 !  
69      0506 1 ! INCLUDE FILES:  
70      0507 1 !  
71      0508 1 !  
72      0509 1 REQUIRE 'EDTSRC:EDTREQ';  
73      0644 1 !  
74      0645 1 !  
75      0646 1 ! MACROS:  
76      0647 1 !  
77      0648 1 !     NONE  
78      0649 1 !  
79      0650 1 ! EQUATED SYMBOLS:  
80      0651 1 !  
81      0652 1 !  
82      0653 1 ! EXTERNAL LITERAL  
83      0654 1     EDT$K_PUT;  
84      0655 1 !  
85      0656 1 !  
86      0657 1 ! OWN STORAGE:  
87      0658 1 !  
88      0659 1 !     NONE  
89      0660 1 !  
90      0661 1 ! EXTERNAL REFERENCES:  
91      0662 1 !  
92      0663 1 !     In the routine
```

```
94 0664 1 %SBTTL 'EDT$SWF_SPLTBK - split the current bucket'
95 0665 1
96 0666 1 GLOBAL ROUTINE EDT$SWF_SPLTBK
97 0667 1 =
98 0668 1
99 0669 1 ++
100 0670 1 FUNCTIONAL DESCRIPTION:
101 0671 1
102 0672 1 This routine splits the current bucket at the current position into
103 0673 1 two buckets. In the special case that we are at the end of the bucket
104 0674 1 this is done simply by appending a new bucket, otherwise, we must allocate
105 0675 1 a new bucket and copy all the text from the current line to the end of the
106 0676 1 bucket into the new bucket.
107 0677 1
108 0678 1 FORMAL PARAMETERS:
109 0679 1
110 0680 1 NONE
111 0681 1
112 0682 1 IMPLICIT INPUTS:
113 0683 1
114 0684 1 EDTSSA_CUR_BUF
115 0685 1 EDTSSZ_WF_DESC
116 0686 1 EDTSSA_WK_BUK
117 0687 1 EDTSSG_WK_CURBUK
118 0688 1
119 0689 1 IMPLICIT OUTPUTS:
120 0690 1
121 0691 1 EDTSSG_WK_MODFD
122 0692 1 EDTSSA_WK_BUK
123 0693 1
124 0694 1 ROUTINE VALUE:
125 0695 1
126 0696 1 1 = OK
127 0697 1 0 = heap storage exhausted
128 0698 1
129 0699 1 SIDE EFFECTS:
130 0700 1
131 0701 1 NONE
132 0702 1
133 0703 1 --
134 0704 1
135 0705 2 BEGIN
136 0706 2
137 0707 2 EXTERNAL ROUTINE
138 0708 2 EDT$SALO_HEAP, : NOVALUE, ! allocate heap storage
139 0709 2 EDT$SDEA_HEAP : NOVALUE, ! deallocate heap storage
140 0710 2 EDT$SCALE[WIO,
141 0711 2 EDT$SWF_NEWBUK : NOVALUE,
142 0712 2 EDT$SWF_ALOBUF : NOVALUE,
143 0713 2 EDT$SWF_MAKECUR : NOVALUE;
144 0714 2
145 0715 2 EXTERNAL
146 0716 2 EDTSSZ_WF_DESC : BLOCK [, BYTE], ! descriptor for the workfile record
147 0717 2 EDTSSG_WK_AVAIL,
148 0718 2 EDTSSG_WK_GRTSTBUK,
149 0719 2 EDTSSA_CUR_BUF : REF TBCB_BLOCK, ! Current text buffer control block
150 0720 2 EDTSSA_WK_BUK : ! Pointer to current bucket
```

```
151 0721 2      REF BLOCK [WF_BUKT_SIZE, BYTE] FIELD (WFB_FIELDS),  
152 0722 2      EDT$SG_WK_CURBUK,  
153 0723 2      EDT$SG_WK_MODFD;  
154 0724 2      ! Number of the current bucket  
155 0725 2      ! Flag indicating bucket was modified  
156 0726 2      LOCAL  
157 0727 2      OLD_NEXT,  
158 0728 2      LEN,  
159 0729 2      ORIG_BUKT;  
160 0730 2      !+  
161 0731 2      !- Remember the next bucket number, and the original one.  
162 0732 2      !-  
163 0733 2      OLD_NEXT = .EDT$SA_WK_BUK [WFB_NEXT_BUKT];  
164 0734 2      ORIG_BUKT = .EDT$SG_WK_CURBUK;  
165 0735 2      !+  
166 0736 2      !- First check to see if we are at the end of a bucket.  
167 0737 2      !-  
168 0738 2      !+  
169 0739 3      IF (.EDT$SA_CUR_BUF [TBCB_LINE_ADDR] EQL .EDT$SA_WK_BUK [WFB_END])  
170 0740 2      THEN  
171 0741 2      !+  
172 0742 2      !- We are at the end, just link a new bucket to this one  
173 0743 2      !-  
174 0744 3      BEGIN  
175 0745 3      !+  
176 0746 4      IF (.EDT$SG_WK_AVAIL NEQ 0)  
177 0747 3      THEN  
178 0748 3      EDT$SA_WK_BUK [WFB_NEXT_BUKT] = .EDT$SG_WK_AVAIL  
179 0749 3      ELSE  
180 0750 3      EDT$SA_WK_BUK [WFB_NEXT_BUKT] = .EDT$SG_WK_GRTSTBUK;  
181 0751 3      !+  
182 0752 3      EDT$SG_WK_MODFD = 1;  
183 0753 3      EDT$SWF_NEWBUK (.OLD_NEXT, .ORIG_BUKT)  
184 0754 3      END  
185 0755 2      ELSE  
186 0756 3      BEGIN  
187 0757 3      !+  
188 0758 3      !- We are not at the end of a bucket.  
189 0759 3      !- Split the bucket into two, at the beginning of the current line.  
190 0760 2      !-  
191 0761 3      LOCAL  
192 0762 3      !+  
193 0763 3      OLD_BUKT,  
194 0764 3      NEW_BUKT;  
195 0765 3      !+  
196 0766 3      LEN = .EDT$SA_WK_BUK [WFB_END] - .EDT$SA_CUR_BUF [TBCB_LINE_ADDR];  
197 0767 3      EDT$SA_WK_BUK [WFB_END] = .EDT$SA_CUR_BUF [TBCB_LINE_ADDR];  
198 0768 3      !+  
199 0769 4      IF (.EDT$SG_WK_AVAIL NEQ 0)  
200 0770 3      THEN  
201 0771 3      EDT$SA_WK_BUK [WFB_NEXT_BUKT] = NEW_BUKT = .EDT$SG_WK_AVAIL  
202 0772 3      ELSE  
203 0773 3      EDT$SA_WK_BUK [WFB_NEXT_BUKT] = NEW_BUKT = .EDT$SG_WK_GRTSTBUK;  
204 0774 3      !+  
205 0775 3      EDT$SCALLWIO (EDT$K_PUT, .EDT$SG_WK_CURBUK, EDT$SZ_WF_DESC);  
206 0776 3      !+  
207 0777 3      !- Save the bucket contents so that later we can extract a portion.
```

```

208 0778 3 !-
209 0779 3
210 0780 3 IF ( NOT EDT$SALO_HEAP (%REF (WF_BUKT_SIZE), OLD_BUKT) ) THEN RETURN (0);
211 0781 3
212 0782 3 EDT$SCPY_MEM (WF_BUKT_SIZE, .EDTSSA_WK_BUK, .OLD_BUKT);
213 0783 3
214 0784 3 Now get a fresh buffer.
215 0785 3
216 0786 3 EDT$SWF_ALOBUF ();
217 0787 3 EDTSSA_WK_BUK [WFB_NEXT_BUKT] = .OLD_NEXT;
218 0788 3 EDTSSA_WK_BUK [WFB_PREV_BUKT] = .ORIG_BUKT;
219 0789 3
220 0790 3 Copy a portion of the old buffer into the new buffer.
221 0791 3
P 0792 3 EDT$SCPY_MEM (.LEN, CHSPTR (.OLD_BUKT, .EDTSSA_CUR_BUF [TBCB_LINE_ADDR]),
0793 3 CHSPTR (.EDTSSA_WK_BUK, WFB_FIXED_SIZE));
224 0794 3
225 0795 3 Discard the copy of the old bucket.
226 0796 3
227 0797 3 EDT$SDEA_HEAP (%REF (WF_BUKT_SIZE), OLD_BUKT);
228 0798 3 EDTSSA_WK_BUK [WFB_END] = .LEN + WFB_FIXED_SIZE;
229 0799 3 EDTSSG_WK_MODFD = T;
230 0800 3
231 0801 4 IF (.OLD_NEXT EQ 0)
232 0802 3 THEN
233 0803 4 BEGIN
234 0804 4
235 0805 5 IF (.ORIG_BUKT EQ .EDTSSA_CUR_BUF [TBCB_LAST_BUKT])
236 0806 4 THEN
237 0807 4 EDTSSA_CUR_BUF [TBCB_LAST_BUKT] = .NEW_BUKT;
238 0808 4
239 0809 4 END
240 0810 3 ELSE
241 0811 4 BEGIN
242 0812 4 EDT$SWF_MAKECUR (.OLD_NEXT);
243 0813 4 EDTSSA_WK_BUK [WFB_PREV_BUKT] = .NEW_BUKT;
244 0814 4 EDTSSG_WK_MODFD = T;
245 0815 3 END;
246 0816 3
247 0817 3 EDT$SWF_MAKECUR (.ORIG_BUKT)
248 0818 2 END;
249 0819 2
250 0820 2 RETURN (1);
251 0821 1 END;

```

! of routine EDT\$SWF_SPLTBUK

```

.TITLE EDT$WFSPLBKT EDT$WFSPLBKT - split the current b
      ucket
.IDENT \V04-000\

.EXTRN EDT$K_PUT, EDT$SALO_HEAP
.EXTRN EDT$SDEA_HEAP, EDT$SCALLWIO
.EXTRN EDT$SWF_NEWSBUK, EDT$SWF_ALOBUF
.EXTRN EDT$SWF_MAKECUR
.EXTRN EDT$SZ_OF_DESC, EDT$SG_WK_AVAIL
.EXTRN EDT$SG_WK_GRTSBUK
.EXTRN EDTSSA_CUR_BUF, EDTSSA_WK_BU

```

				.EXTRN	EDT\$SG_WK_CURBUK	
				.EXTRN	EDT\$SG_WK_MODFD	
				.PSECT	_EDT\$CODE,NOWRT, SHR, PIC,2	
				.ENTRY	EDT\$SWF_SPLTBUK, Save R2,R3,R4,R5,R6,R7,R8,-; 0666	
				MOVAB	R9,R10,R11	
				MOVAB	EDT\$SA_CUR_BUF, R11	
				SUBL2	#8 SP	
				MOVL	EDT\$SA_WK_BUK, R10	
				MOVAB	2(R0), R3	0733
				MOVZWL	(R3) OLD_NEXT	
				MOVL	EDT\$SG_WK_CURBUK, R4	0734
				MOVL	R4, ORIG_BUKT	
				MOVL	EDT\$SG_WR_AVAIL, R2	0746
				MOVL	EDT\$SA_CUR_BUF, R1	0739
				CMPL	(R1), Z(R0)	
				BNEQ	3\$	
				TSTL	R2	0746
				BEQL	1\$	0748
				MOVW	R2, (R3)	
				BRB	2\$	
				MOVW	EDT\$SG_WK_GRTSTBUK, (R3)	0750
				MOVL	#1, EDT\$SG_WK_MODFD	0752
				PUSHL	ORIG_BUKT	0753
				PUSHL	OLD_NEXT	
				CALLS	#2, EDT\$SWF_NEWBUK	
				BRW	9\$	
				SUBL3	(R1), -(R0), LEN	0766
				MOVL	(R1), 4(R0)	0767
				TSTL	R2	0769
				BEQL	4\$	
				MOVL	R2, NEW_BUKT	0771
				MOVW	R2, (R3)	
				BRB	5\$	
				MOVL	EDT\$SG_WK_GH_STBUK, NEW_BUKT	0773
				MOVW	NEW_BURT, (R3)	
				PUSHAB	EDT\$SWF_DESC	0775
				PUSHL	R4	
				PUSHL	#EDT\$K_PUT	
				CALLS	#3, EDT\$SCALLWIO	
				PUSHAB	OLD_BUKT	
				MOVZWL	#512, 4(SP)	0780
				PUSHAB	4(SPS)	
				CALLS	#2, EDT\$SALO_HEAP	
				BLBS	R0, 6\$	
				BRW	10\$	
				MOVL	EDT\$SA_WK_BUK, R0	0782
				MOVC3	#512, TROT, OLD_BUKT	
				CALLS	#0, EDT\$SWF_ALOBDF	0786
				MOVL	EDT\$SA_WK_BUK, R0	0787
				MOVL	OLD_NEXT, 2(R0)	
				MOVL	ORIG_BUKT, (R0)	0788
				MOVL	EDT\$SA_CUR_BUF, R1	0793
				ADDL3	(R1), OLD_BUKT, R1	
				MOVC3	LEN, (R1), 8(R0)	

EDT\$WF\$PLBKT
VO4-000

EDT\$WF\$PLBKT - split the current bucket
EDT\$SWF_SPLTBUK - split the current bucket

C 16

16-Sep-1984 02:15:01

14-Sep-1984 12:25:45

VAX-11 Bliss-32 V4.0-742
DISK\$VMSMASTER:[EDT.SRC]WF\$PLBKT.BLI;1

Page 7
(3)

		04 AE	0200	04 AE	9F 000D1	PUSHAB	OLD_BUKT	: 0797
				04 AE	8F 3C 000D4	MOVZWL	#512, 4(SP)	
		00000000G 00		02 FB	000DDA	PUSHAB	4(SP)	
				6A DO	000E4	CALLS	#2, EDT\$SDEA_HEAP	
				01 A7	9E 000E7	MOVL	EDT\$SA_WK_BUR, R0	0798
		00000000G 00		01 DC	000EC	MOVAB	8(R7), 4(R0)	
				59 D5	000F3	MOVL	#1, EDT\$SG_WK_MODFD	0799
				11 12	000F5	TSTL	OLD_NEXT	0801
				6B DO	000F7	BNEQ	7S	
		58 10 A0	10	00 ED	000FA	MOVL	EDT\$SA_CUR_BUF, R0	
				1C 12	00100	CMPZV	#0, #18, 16(R0), ORIG_BUKT	0805
		10 A0		56 B0	00102	BNEQ	8S	
				16 11	00106	MOVW	NEW_BUKT, 16(R0)	0807
		00000000G 00		59 DD	00108 7\$:	BRB	8S	0801
				01 FB	0010A	PUSHL	OLD_NEXT	0812
				6A DO	00111	CALLS	#1, EDT\$SWF_MAKECUR	
		00000000G 00		56 B0	00114	MOVL	EDT\$SA_WK_BUKT, R0	0813
				01 DO	00117	MOVW	NEW_BURT, (R0)	
		00000000G 00		58 DD	0011E 8\$:	MOVL	#1, EDT\$SG_WK_MODFD	0814
				01 FB	00120	PUSHL	ORIG_BUKT	0817
		00000000G 00		01 DO	00127 9\$:	CALLS	#1, EDT\$SWF_MAKECUR	
				50	0012A	MOVL	#1, R0	0820
				04 0012B	10\$:	RET		
				04 0012D		CLRL	RO	0821
						RET		

; Routine Size: 302 bytes, Routine Base: _LVT\$CODE + 0000

; 252 0822 1
; 253 0823 1 !<BLF/PAGE>

EDT\$WFSPLBKT D 16
 V04-000 EDT\$WFSPLBKT - split the current bucket 16-Sep-1984 02:15:01 VAX-11 Bliss-32 V4.0-742 Page 8
 EDT\$WFSPLBKT - split the current bucket 14-Sep-1984 12:25:45 DISK\$VMSMASTER:[EDT.SRC]WFSPLBKT.BLI;1 (4)
 : 255 0824 1 END
 : 256 0825 1 ! of module EDT\$WFSPLBKT
 : 257 0826 0 ELUDOM

PSECT SUMMARY

Name	Bytes	Attributes
_EDT\$CODE	302	NOVEC,NOWRT, RD , EXE, SHR, LCL, REL, CON, PIC,ALIGN(2)

Library Statistics

File	-----	Symbols	-----	Pages	Processing
	Total	Loaded	Percent	Mapped	Time
\$255\$DUA28:[EDT.SRC]EDT.L32:1	377	31	8	40	00:00.2
\$255\$DUA28:[EDT.SRC]PSECTS.L32:1	2	1	50	7	00:00.1

COMMAND QUALIFIERS

BLISS/CHECK=(FIELD,INITIAL,OPTIMIZE)/NOTRACEBACK/LIS=LIS\$:WFSPLBKT/OBJ=OBJ\$:WFSPLBKT MSRCS:WFSPLBKT.BLI/UPDATE=(ENHS:WFSPLBKT)

: Size: 302 code + 0 data bytes
 : Run Time: 00:16.9
 : Elapsed Time: 00:20.8
 : Lines/CPU Min: 2939
 : Lexemes/CPU-Min: 10256
 : Memory Used: 120 pages
 : Compilation Complete

0141 AH-BT13A-SE
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WFSPLBKT
LIS

WFCLIN
LIS

WFRBUKT
LIS

WFCLIN
LIS

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LIS

WFREAINP
LIS

WFTOP
LIS

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LIS

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LIS

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LIS